EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for the second quarter of 2004 -- comparing the performance against the requirements from BAH, including Terra, TRMM, and QuikScat, Aqua, ADEOS II, Aura, SAGE III, and ICESat requirements

Up to date graphical results can be found on the NEW EOS network performance web site (now pretty stable): http://ensight.eos.nasa.gov/active_net_measure.html. Or click on any of the individual site links below.

Highlights:

- Congestion at GSFC reduced performance and ratings from ICESAT.
- Otherwise, mostly stable performance.
- The May '04 requirements are now used as the basis for the ratings; ADEOS 2 requirements have been removed.

Change History:

- February 2003: Another requirements update from BAH – no major changes
- December 2002: Updated to latest BAH requirements, based on Handbook v1.2. Includes additional missions.
- June 2001: The requirements were modified to incorporate an updated number of EOS funded users at each tested site, based on the latest SPSO database. The total number of users increased in this way from 434 to 1012 (US only).
- May 2001: The requirements were increased by adding a 50% contingency factor to all QA and SIPS requirements, which were omitted with the change to the new BAH requirements in March 2001.

Ratings:

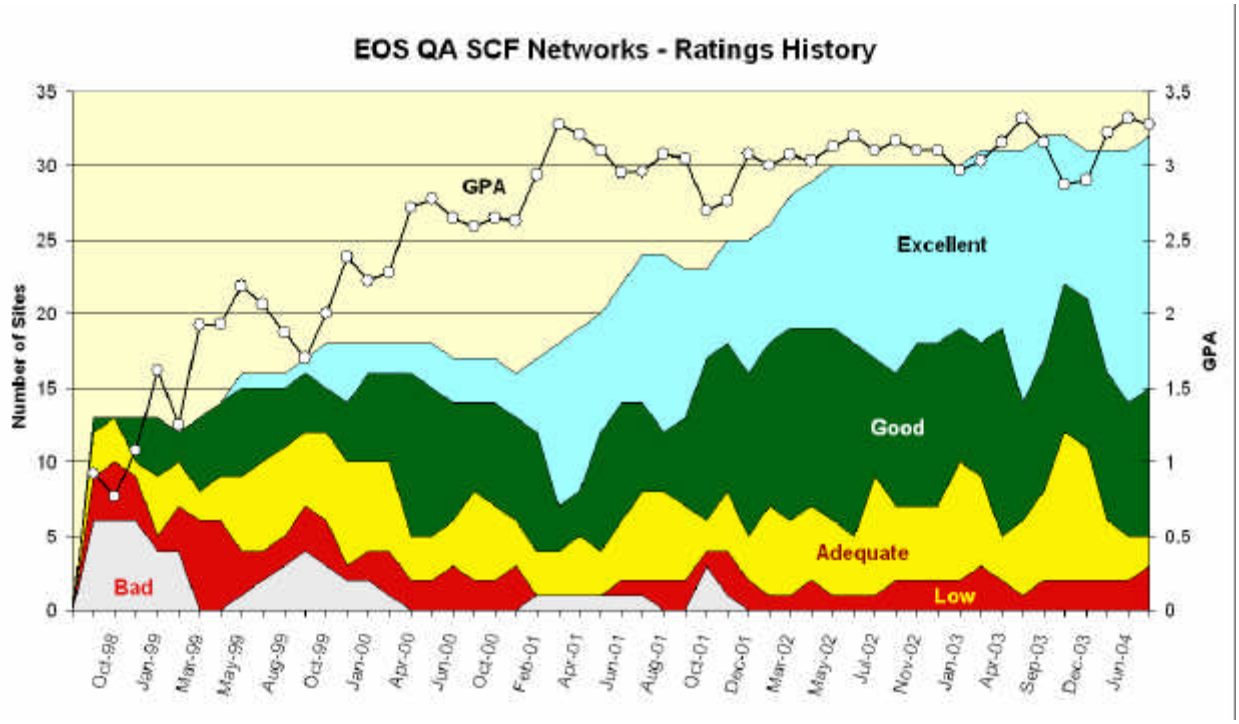
Rating Categories:

Excellent: median of daily worst cases > 3 x requirement
Good: median of daily worst cases > requirement

Adequate: median of daily worst cases < requirement
and
median of daily medians > requirement

Low: median of daily medians < requirement.
Bad: median of daily medians < 1/3 of the requirement.

The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements. The GPA is calculated based on Excellent: 4, Good: 3, Adequate: 2, Low: 1, Bad: 0



Ratings Changes:

Upgrades: ↑

Arizona: Good → **Excellent**
LaRC → JPL: Low → **Good**
NSIDC → NOAA-NESDIS: Adequate → **Excellent**
LANL: Good → **Excellent**

Downgrades: ↓

LaTIS → NSSTC: Adequate → **Low**
UCSD: Excellent → **Good**
MIT: Excellent → **Good**
Ohio State: Excellent → **Low**

Testing Started:

NSSTC → NSIDC: **Adequate**

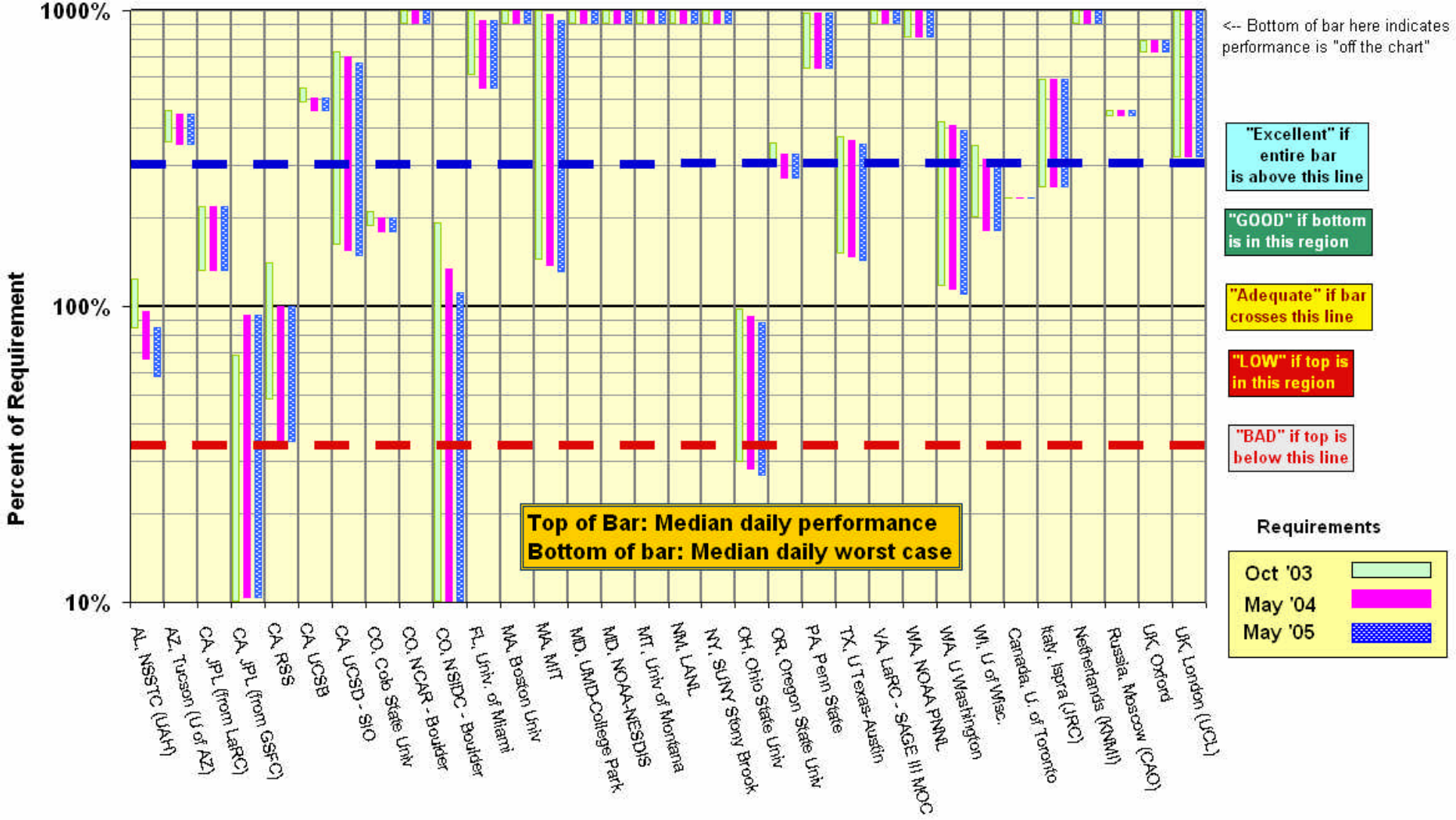
EOS QA SCF Sites: Network Requirements vs. Measured Performance

3 Q 2004		Requirements (kbps)			Testing						
Destination	Team (s)	Previous: Oct-03	Current: May-04	Future: Apr-05	Source Node	Median kbps	Median Daily Worst	Rating re Current Requirements May-04	Prev	Rating re Apr-05	Route Tested
AL, NSSTC (UAH)	CERES, AMSR-E	4878	6236	7127	LaTIS	6015	4089	LOW	A	LOW	NISN + FDDI
AZ, Tucson (U of AZ)	MODIS, MISR	2750	2811	2811	EDC	12603	9861	Excellent	G	Excellent	Abilene via MAX
CA, JPL (from LaRC)	MISR	18484	18484	18483	LDAAC	40177	24310	GOOD	L	GOOD	EMSnet
CA, JPL (from GSFC)	AIRS, TES, others	24798	18088	18088	GDAAC	16980	1860	LOW	L	LOW	NISN SIP
CA, RSS	AMSR-E	1926	2696	2696	JPL-PODAAC	2697	932	Adequate	A	Adequate	2 * T1 - Consolidated
CA, UCSB	MODIS	2903	3126	3126	GDAAC	18844	14183	Excellent	E	Excellent	Abilene via MAX
CA, UCSD - SIO	ICESAT, CERES	6478	6792	7107	GSFC-ICESAT	47189	10463	GOOD	E	GOOD	Abilene via NISN / MAX
CO, Colo State Univ	CERES	2049	2147	2147	LaTIS	4287	3808	GOOD	G	GOOD	NISN -> Abilene
CO, NCAR - Boulder	MOPITT, HIRDLS	3121	3121	3121	GDAAC	170766	64339	Excellent	E	Excellent	Abilene via MAX
CO, NSIDC - Boulder	AMSR	4373	6248	7497	NSSTC	8374	232	Adequate	n/a	Adequate	NISN
FL, Univ. of Miami	MODIS, MISR	16991	18823	18823	GDAAC	173316	102228	Excellent	E	Excellent	Abilene via MAX
IL, UIUC	MISR	1133	1133	1133							
MA, Boston Univ	MODIS, MISR	2781	3035	3035	EDC DAAC	63989	41329	Excellent	E	Excellent	Abilene via vBNS+
MA, MIT	ICESAT	6378	6692	7007	GSFC-ICESAT	64757	9118	GOOD	E	GOOD	Abilene via NISN / MAX
MD, UMD-College Park	MODIS	2025	2039	2039	GSFC-MAX	195424	168381	Excellent	E	Excellent	Direct Fiber
MD, NOAA-NESDIS	CERES, AMSR-E	1513	1517	1517	NSIDC	18465	14365	Excellent	A	Excellent	Abilene via FRGP, MAX
MT, Univ of Montana	MODIS	747	819	819	EDC DAAC	18410	11590	Excellent	E	Excellent	Abilene via vBNS+
NM, LANL	MISR	1033	1033	1033	LaRC DAAC	19375	14387	Excellent	G	Excellent	NISN -> ESNet via CA
NY, SUNY Stony Brook	CERES	566	573	573	LaTIS	25844	20255	Excellent	E	Excellent	NISN -> Abilene via Chicago
OH, Ohio State Univ	ICESAT	5678	5992	6307	GSFC-ICESAT	5552	1686	LOW	E	LOW	Abilene via NISN / MAX
OR, Oregon State Univ	CERES, MODIS	6929	7570	7570	LaTIS	24796	20398	GOOD	G	GOOD	NISN -> Abilene
PA, Penn State	MISR	2642	2642	2642	LaRC DAAC	25896	16676	Excellent	E	Excellent	NISN -> Abilene
TX, U Texas-Austin	ICESAT	10430	10745	11060	GSFC-ICESAT	39082	15636	GOOD	G	GOOD	Abilene via NISN / MAX
VA, LaRC - SAGE III MOC	SAGE III	200	200	200	GSFC-CSAFS	6546	3892	Excellent	E	Excellent	NISN SIP
WA, NOAA PNNL	MISR	1442	1442	1442	LaRC DAAC	15280	11639	Excellent	E	Excellent	NISN -> ESNet via Chicago
WA, U Washington	ICESAT	11003	11374	11746	GSFC-ICESAT	46343	12853	GOOD	G	GOOD	Abilene via NISN / MAX
WI, U of Wisc.	MODIS, CERES, AIRS	14788	16461	16461	GDAAC	51942	29502	GOOD	G	GOOD	Abilene via MAX
Canada, U. of Toronto	MOPITT	612	612	612	LaRC DAAC	1426	1408	GOOD	G	GOOD	NISN T1
Italy, Ispra (JRC)	MISR	517	517	517	LaRC DAAC	3025	1306	GOOD	G	GOOD	NISN-UUNET-Milan
Netherlands (KNMI)	OMI	1024	1024	1024	GSFC-MAX	33149	27618	Excellent	E	Excellent	Abilene --> Chi -> Surfnet
Russia, Moscow (CAO)	SAGE III	26	26	26	CAO-->LaRC-N	119	114	Excellent	E	Excellent	NISN -> Moscow
UK, Oxford	HIRDLS	512	512	512	GSFC-MAX	4070	3695	Excellent	E	Excellent	Abilene->JAnet (NY)
UK, London (UCL)	MISR, MODIS	1033	1033	1033	LaRC DAAC	10544	3290	Excellent	E	Excellent	Abilene->JAnet (NY)

*Rating Criteria:	
Excellent	Median of Daily worst hours >= 3 *Requirement
GOOD	Median of Daily worst hours >= Requirement
Adequate	Median of Daily worst hours < Requirement <= Median of Daily Medians
LOW	Requirement > Median of Daily Medians
BAD	Requirement > 3 * Median of Daily Medians

Rating	Current May-04	Last Report	Future: Apr-05
Excellent	17	17	17
GOOD	10	9	10
Adequate	2	3	2
LOW	3	2	3
BAD	0	0	0
Total	32	31	32
GPA	3.28	3.32	3.28

EOS QA SCF Sites
Daily Median and Worst Performance as a percent of Requirements



Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day, a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, NSSTC (UAH) (aka GHCC)

Rating: ↓ Adequate → Low
Teams: CERES, AMSR
Domain: nsstc.uah.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	9.6	6.0	4.1	NISN SIP
GSFC	24.3	22.4	14.9	NISN SIP
NSIDC	5.2	4.7	1.7	NISN SIP
NSSTC → NSIDC	8.5	8.4	0.2	NISN SIP

Requirements:

Source Node	Date	mbps	Rating
LaRC LaTIS	Oct '03	4.9	Adequate
LaRC LaTIS	May '04	6.2	Low
LaRC LaTIS	Apr '05	7.1	Low

Comments: Daily worst thruput from LaTIS dropped further – median is now slightly below the requirement, dropping the rating to "Low". Thruput from GSFC has been stable since April '03. New testing between NSSTC and NSIDC is limited by the NISN PVC at NSIDC and congestion.

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2) AZ, Tucson (U of AZ):

Rating: ↑ Good → Excellent
Teams: MODIS
Domain: arizona.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/ARIZONA.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	17.0	12.6	9.9	Abilene via vBNS+ / Chicago
GSFC	26.0	22.7	17.7	Abilene via MAX
LaRC DAAC	26.3	25.6	20.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
EDC LPDAAC	'03 - '05	2.8	Excellent

Comments: The ratings are based on the MODIS flow from EDC (There is no longer a requirement from LaRC, as the MISR team has all moved away from Arizona).

Performance improved somewhat from all sources in September, and performance from EDC stabilized, improving the rating to "Excellent".

3) CA, JPL:

Ratings: GSFC: Continued **Low**
LaRC: ↑ Low → **Good**

Teams: MISR, AIRS, TES, MLS, ASTER
Domain: jpl.nasa.gov
Web Pages: http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml
http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC → MISR	40.5	40.2	24.3	EMSnet (ftp)
GSFC DAAC → AIRS	18.7	17.0	1.9	NISN SIP
GSFC → MISR	13.3	13.2	9.9	NISN PIP

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03 - '05	18.5	Good
GSFC DAAC	'04, 05	18.1	Low

Comments:. During this period, the iperf testing from LaRC to JPL-MISR was restored, with performance at the nominal circuit limit, rating "Good".. Previously, iperf was blocked, so testing via ftp was used for this rating. FTP uses only a single TCP stream, and is limited by the TCP window sizes, so the rating had dropped to "Low". The network has been stable since July '03.

Testing to AIRS is from GDAAC, and uses SIP. Thruput from GDAAC to JPL-AIRS has been generally steady since September '02. The daily median is slightly below the requirement, thus a FY'03-'05 rating of "LOW". The low value for the daily worst indicates that there is considerable congestion in this path.

Testing from the GSFC campus to JPL has been routed via NISN PIP since September '02, with very steady performance.

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4) CA, RSS: (Santa Rosa):

Ratings: Continued **Adequate**

Teams: AMSR
Domain: remss.com
Web page: http://ensight.eos.nasa.gov/ Missions/aqua/RSS.shtml

Test Results:

Source Node	Medians of daily tests (Mbps)			Route
	Best	Median	Worst	
JPL PODAAC	2.84	2.70	0.93	NISN SIP: 2 x T1
GSFC	2.59	2.29	0.85	NISN SIP: 2 x T1

Requirements:

Source Node	FY	Mbps	Rating
JPL PODAAC	'04 – '05	2.70	Adequate

Comments: Thruput has been very stable since August '02 (except for the period from Nov 03 to June 04 when the test node was down), rated "Adequate", as good as can be expected from a pair of T1s.

Note: RSS also has a requirement to flow data to NSSTC (see #1); it is not tested. The requirement is 900 kbps in FY '03, but grows to 3.1 mbps in FY'04 and 4.4 mbps in FY'05. While the FY'03 requirement is achievable with the 2 x T1 configuration, the FY'03 and '04 flows are not.

5) CA, UCSB:

Ratings: GSFC: Continued **Excellent**
EDC: Continued **Excellent**

Teams: MODIS
Domain: ucsb.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/UCSB.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	17.9	15.8	14.2	Abilene via NISN / MAX
EDC-LPDAAC	17.2	14.5	12.6	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC-DAAC	'04, '05	3.1	**Excellent**
EDC-LPDAAC	'04, '05	2.2	**Excellent**

Comments: The requirements are split between EDC and GSFC. Performance from both GSFC and EDC is very steady. The rating remains "Excellent" from both sites.

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6) CA, UCSD (SIO):

Ratings: ICESAT: ↓ Excellent → **Good**
LaTIS: Continued **Excellent**

Teams: CERES, ICESAT
Domain: ucsd.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/UCSD.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	76.2	47.2	10.5	Abilene via NISN / MAX
LaTIS	26.3	25.4	23.0	Abilene via NISN / Chi
GSFC-MAX	42.5	39.8	26.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	6.8, 7.0	**Good**
LaTIS	'02 - '05	0.26	**Excellent**

Comments: The rating is based on testing from the ICESAT SCF at GSFC. The daily worst from ICESAT decreased to a bit below 3 x the requirement, dropping the rating to "Good". The difference in the daily worst value between the performance from ICESAT and GSFC-MAX shows that there is considerable congestion from ICESAT (also observed to other ICESAT sites).

Performance from LaTIS has been stable since the LaTIS test node was restored on 30 April '03. The CERES requirements are much lower than ICESAT, so the LaTIS rating continues as "Excellent".

7) CO, Colo State Univ.:

Rating: Continued **Good**

Teams: CERES
Domain: colostate.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	4.37	4.29	3.81	Abilene via NISN / Chicago
GSFC	7.12	7.09	6.54	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'04, '05	2.05	**Good**

Comments: Performance from both LaTIS and GSFC has been stable since December '03. The daily worst is above the requirement for '04 through '05, so the rating remains "Good". Performance from GSFC would rate as "Excellent".

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8) CO, NCAR:

Ratings: GSFC: Continued **Excellent**
LaRC: N/A

Teams: MOPITT, HIRDLS
Domain: scd.ucar.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	N/A	N/A	N/A	Abilene via NISN / Chicago
GSFC-MAX	198.2	170.8	64.3	Abilene via MAX
EDC	72.5	50.0	31.9	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03 - '05	2.4	**N/A**
GSFC	'04, '05	3.1	**Excellent**

Comments: Performance from GSFC was much higher to the new NCAR host (the median was 45 mbps previously). The median daily worst is far above 3 x the requirement, so the ratings remain "Excellent"".

The performance host at NCAR was down from early April to mid September, so the data above is based on the September testing only. Testing from LaRC did not resume until early October (steady at 20 mbps at that time), so the rating this period is based only on testing from GSFC.

9) FL, Univ. of Miami:

Rating: GSFC: Continued **Excellent**
LaRC: Continued **Excellent**

Teams: MODIS, MISR
Domain: rsmas.miami.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/MIAMI.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	196.6	173.3	102.2	Abilene via MAX
GSFC-MAX	239.3	186.5	91.9	Abilene via MAX
LaRC DAAC	25.5	23.0	15.1	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04 - '05	18.8	**Excellent**
LaRC DAAC	'04 - '05	1.1	**Excellent**

Comments: Thruput from GDAAC has been stable since the GDAAC firewall upgrade in late November '03. The rating remains "Excellent".

Performance from LaRC DAAC has been stable since May '03, also rating "Excellent".

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10) MA, Boston Univ:

Ratings: EDC: Continued **Excellent**
LaRC: Continued **Excellent**

Domain: bu.edu
Teams: MODIS, MISR
Web Page: http://ensight.eos.nasa.gov/Missions/terra/BU.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC DAAC	76.4	64.0	41.3	Abilene via vBNS+ / Chicago
GSFC	91.4	86.1	57.3	Abilene via MAX
LaRC DAAC	26.6	25.3	16.1	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
EDC DAAC	'04 - '05	3.0	**Excellent**
LaRC DAAC	'04 - '05	1.2	**Excellent**

Comments: Performance from EDC improved in mid June due to EDC routing changes; other sources remained stable. The rating remains "Excellent".

11) MA, MIT:

Rating: ↓ Excellent → **Good**

Teams: ICESAT
Domain: mit.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/MIT.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	78.4	64.8	9.1	Abilene via NISN / MAX
GSFC-MAX	91.0	88.1	71.7	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	6.7, 7.0	**Good**

Comments: Median performance from GSFC ICESAT to MIT is now affected by congestion inside GSFC, dropping the rating to "Good". From GSFC-MAX the GSFC congestion is avoided with much less congestion apparent -- the rating would remain “Excellent”.

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12) MD, NOAA-NESDIS (Camp Springs)

Rating: ↑ Adequate → **Excellent**

Teams: CERES, AMSR-E
Domain: nesdis.noaa.gov
Web Pages: http://ensight.eos.nasa.gov/Missions/terra/NOAA_Camp_Springs.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
NSIDC	24.9	18.5	14.4	FRGP / Abilene / MAX
LaTIS	14.8	10.6	3.5	
GSFC-MODIS	31.9	31.5	28.8	Peering at MAX

Requirements (QA only):

Source Node	FY	mbps	Rating
NSIDC	'02 – '05	1.52	**Excellent**
LaTIS	'02 – '05	0.21	**Excellent**

Comments: The performance from all sources improved around August 12, due to upgrades at NOAA (medians before that were NSIDC: 2.2 mbps, LaTIS: 7.0 mbps, and MODIS: 13.7 mbps), improving the rating to "Excellent" from NSIDC -- .the rating from LaTIS remains "Excellent".

13) MD, Univ. of Maryland:

Rating: Continued **Excellent**

Teams: MODIS
Domain: umd.edu
Web Pages: http://ensight.eos.nasa.gov/Missions/terra/UMD_SCF.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	201.6	195.4	168.4	Direct Fiber OC-12 / MAX / SCF
EDC	130.5	115.2	85.7	VBNS+ / Abilene / MAX / SCF
NSIDC	92.7	89.0	49.8	Abilene / MAX / SCF

Requirements (QA only):

Source Node	FY	mbps	Rating
GSFC DAAC	'02 – '05	2.0	**Excellent**

Comments: Performance from GSFC-MAX was at a few slightly different stable levels this period. Also stable performance from EDC and NSIDC.

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14) MT, Univ of Montana:

Rating: Continued **Excellent**

Teams: MODIS
Domain: ntsg.umt.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/MONT.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	18.9	18.4	11.6	VBNS+ / Chi / Abilene
GSFC	40.7	37.6	29.1	MAX / Abilene
NSIDC	41.4	37.5	22.5	CU / FRG / Abilene

Requirements:

Source Node	FY	mbps	Rating
EDC LPDAAC	'04 - '05	0.82	**Excellent**

Comments:. Stable performance from all sources. With the low requirements, the rating continues as "Excellent".

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15) NM, LANL:

Rating: ↑ Good → **Excellent**

Teams: MISR
Domain: lanl.gov
Web Page: http://ensight.eos.nasa.gov/Missions/terra/LANL.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	19.5	19.4	14.4	NISN SIP / MAE-W (Ames) / ESnet
GSFC	20.2	20.2	18.2	MAX / ESnet

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'05	1.03	**Excellent**

Comments: Performance from both LDAAC and GDAAC was much less noisy, with higher median, and much higher daily worst values, apparently due to an ESnet upgrade in early July. The rating improves to "Excellent"

16) NY, SUNY-SB:

Rating: Continued **Excellent**

Teams: CERES, MODIS
Domain: sunysb.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/SUNYSB.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	27.1	25.8	20.3	NISN SIP / MAX / Abilene / NYSERnet
GSFC	50.1	37.2	26.8	MAX / Abilene / NYSERnet

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02-'05	0.57	Excellent

Comments: Performance from LaTIS has been generally stable since October '03. Also stable performance from GSFC. With the low requirement, the rating remains "Excellent".

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17) OH, Ohio State Univ:

Rating: ↓↓ Excellent → Low

Teams: ICESAT
Domain: ohio-state.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	21.7	5.6	1.7	Abilene via NISN / MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	6.0, 6.3	Low

Comments: Performance was poor from Aug 1 to Sept 20, due to problems at Ohio State – back to normal now. But for this period, the problems dominate, and the rating drops to "Low".

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18) OR, Oregon State Univ:

Ratings: LaTIS: Continued **Good**
GSFC: Continued **Excellent**

Domain: oce.orst.edu
Teams: CERES, MODIS
Web Page: http://ensight.eos.nasa.gov/Missions/terra/ORST.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	26.2	24.8	20.4	Abilene via NISN / Chicago
JPL	64.5	57.1	18.2	Abilene via CalRen
GSFC	77.1	44.2	19.8	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'04 - '05	7.5	Good
GDAAC	'02 - '05	0.25	Excellent

Comments: Performance from all sources stable (but noisier than expected from nearby JPL), and less noisy than previously from LaTIS (students gone over the summer?); rating remains "Good" (close to "Excellent").

19) PA: Penn State Univ:

Rating: Continued **Excellent**

Teams:MISR Domain: psu.edu

Web Page: http://ensight.eos.nasa.gov/Missions/terra/PENN_STATE.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	26.7	25.9	16.7	Abilene via NISN / MAX
GSFC	76.1	75.9	74.4	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'05	2.6	**Excellent**

Comments: Performance from both sources was very stable; the rating remains "Excellent".

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20) TX: Univ. Texas - Austin

Rating: Continued **Good**

Teams: ICESAT Domain: utexas.edu

Web Page: http://ensight.eos.nasa.gov/Missions/icesat/TEXAS.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	43.3	39.1	15.6	Abilene via NISN / MAX
GSFC-MAX	41.3	37.4	30.2	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'03, 05	10.7, 11.1	**Good**

Comments: Performance from GSFC-MAX and ICESAT-SCF at GSFC via Abilene has been very stable since July '03; with moderate congestion indicated at ICESAT. The rating remains "Good".

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21) VA, LaRC: SAGE III MOC:

Rating: Continued **Excellent**

Teams: SAGE III Domain: larc.nasa.gov

Web Page: http://ensight.eos.nasa.gov/Missions/sage/SAGE_MOC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-SAFS	7.0	6.5	3.9	NISN PIP (?)

Requirements:

Source Node	FY	mbps	Rating
GSFC SAFS	'02 – '05	0.20	**Excellent**

Comments: Stable thruput since upgrade of LaRC MOC machine in Feb '03. Rating continues "Excellent"

Note: it is now believed that the route is actually PIP…NISN PIP is often used between NASA centers, and traceroutes from GSFC-SAFS are blocked.

22) WA, Pacific Northwest National Lab:

Rating: Continued **Excellent**

Teams: MISR
Domain: pnl.gov
Web Page: http://ensight.eos.nasa.gov/Missions/terra/PNNL.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	15.7	15.3	11.6	ESnet via NISN - Chicago
GSFC	19.3	19.2	18.9	ESnet via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'05	1.4	**Excellent**

Comments: Performance from LaRC to PNNL a little less noisy; the rating remains "Excellent". Thruput has been extremely stable from GSFC.

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23) WA, Univ Washington:

Rating: Continued **Good**

Teams: ICESAT
Domain: washington.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/UW.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	75.4	46.3	12.9	Abilene via NISN/MAX
GSFC-MAX	69.3	68.6	66.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	11.3, 11.7	**Good**

Comments: Performance from ICESAT-SCF at GSFC is much noisier than from GSFC-MAX (as with all ICESAT sites). The median daily worst remains above the requirement; keeping the rating as "Good" – would be "Excellent" from GSFC-MAX.

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24) WI, Univ. of Wisconsin:

Ratings: GSFC: Continued **Good**
LARC: Continued **Adequate**

Teams: MODIS, CERES, AIRS
Domain: ssec.wisc.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/WISC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
G-DAAC	73.0	51.9	29.5	MAX / Abilene / Chi / MREN
LaTIS	12.7	9.8	3.4	NISN / Chicago / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04 - '05	16.5	**Good**
LaRC Combined	'03, '04	6.8, 7.5	**Adequate**

Comments: Performance from both sites was stable; the rating from GSFC remains "Good" and from LaRC remains "adequate".

25) Canada, Univ of Toronto:

Rating: Continued **Good**

Team: MOPITT
Domain: physics.utoronto.ca
Web Page: http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	1.43	1.43	1.41	NISN / GSFC / T1
LaRC DAAC	18.7	15.8	8.9	NISN / Chicago / CA*net4
GSFC	1.46	1.46	1.39	NISN / T1
GSFC	14.9	14.6	12.7	MAX / Abilene / Chicago / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '04	100	**Excellent**
GSFC EOC	'02 - '04	512	**Good**
Combined	'02 - '04	612	**Good**

Comments: Performance from both LDAAC (Source of QA data) and GSFC (Source for IST) via NISN dedicated T1 is very steady. Since both flows are combined together on the T1, the performance compared to the combined requirement rates as "Good".

Performance via CA*net4 from GSFC and LaRC has been stable since October '03. Ratings via this path from either source would be "Excellent".

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26) Italy, EC - JRC:

Rating: Continued **Good**

Teams: MISR
Domain: ceo.sai.jrc.it
Web Page: http://ensight.eos.nasa.gov/Missions/terra/JRC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	3.25	3.03	1.31	NISN / UUnet / Milan
GSFC-NISN	3.44	3.33	1.29	NISN / UUnet / Milan

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 – '05	517	**Good**

Comments: Performance stable from both sources since July '03; this period there was a small increase in noisiness; the rating remains "Good"

27) Netherlands, KNMI: Rating: Continued **Excellent**

Teams: OMI Domain: nadc.nl
Web Pages: http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml
http://ensight.eos.nasa.gov/Missions/aura/KNMI.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX → OMI PDR Server	37.9	33.1	27.5	MAX / Abilene/ Chi / Surfnet
GSFC-MAX → KNMI Test Node	92.1	92.1	92.0	MAX / Abilene/ Chi / Surfnet
GSFC-NISN → KNMI Test Node	18.7	6.0	2.8	NISN / Chi / Surfnet

Requirements: (2 ISTs Only)

Source Node	FY	Mbps	Rating
GSFC	'04 – '05	1.02	**Excellent**

Comments: Performance via Abilene and Surfnet is very stable to both the OMI PDR server and KMNI Test node. This is exceptionally good performance for US to Europe!

However, the NISN route exhibits much lower performance and significant noisiness. Therefore, it is important that all servers at GSFC which communicate with KNMI have access to MAX.

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28) Russia, CAO (Moscow): Rating: Continued **Excellent**

Teams: SAGE III Domain: mipt.ru
Web Pages: http://ensight.eos.nasa.gov/Missions/sage/CAO.shtml
http://ensight.eos.nasa.gov/Missions/sage/LARC_SAGE.shtml

Test Results:

Source → Dest	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
CAO → LaRC	119	119	114	MIPT / TCnet / NISN SIP
CAO → LaRC	1128	1085	565	Commodity Internet
LaRC → CAO	148	148	128	NISN SIP / TCnet / MIPT
LaRC → CAO	2916	2824	876	Commodity Internet

Requirements:

Source → Dest	FY	kbps	Rating
CAO → LaRC	'02 – '05	26	**Excellent**
LaRC → CAO	'02 – '05	26	**Excellent**

Comments: Performance testing running since November '02, with dual routes. CAO Host down for reconfiguration June 23 – July 15. Performance on the NISN dedicated circuit to Moscow, then TCnet (NASA Russian ISP) tunnel to CAO ISP (MIPT) is extremely steady in both directions, with a rating of "Excellent".

The dual route configuration also allows testing via the commodity internet route. When the CAO node came back up, performance improved (approx doubled) to CAO via internet, but CAO → LaRC via internet was unchanged. Performance via the internet route is much better, but is also more variable, and also would rate "Excellent".

29) UK, London: (UCL SCF)

Rating: ↑ Adequate → **Excellent**

Teams: MODIS, MISR
Domain: ucl.ac.uk
Web Page: http://ensight.eos.nasa.gov/Missions/terra/UCLSCF.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	19.2	10.5	3.3	NISN / Level3 (San Jose) / London
GSFC MAX	48.8	48.8	48.5	MAX / Abilene / NY / JAnet

Requirements

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '05	1.03	**Excellent**

Comments: Route from LDAAC still via NISN / Level3 peering in San Jose (since approx January '04). The rating on this route remains [barely] "Excellent".

Performance from GSFC remains very stable and much higher than the NISN / Level3 route.

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30) UK, Oxford:

Rating: Continued **Excellent**

Teams: HIRDLS
Domain: ox.ac.uk
Web Page: http://ensight.eos.nasa.gov/Missions/aura/OXFORD.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	4.08	4.07	3.69	MAX / Abilene / NY / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '04	512	**Excellent**

Comments: Very steady performance continues since May '03, rating "Excellent" compared to the IST requirement.

Test Results to other EOS HIRDLS UK Sites (Requirements TBD):
Web Page: http://ensight.eos.nasa.gov/Missions/aura/UK_RAL.shtml

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC → RAL	30.4	19.5	6.2	MAX / Abilene / NY / JAnet

Comments: Thruput to RAL remains noisy, but quite good, with occasional step changes. .